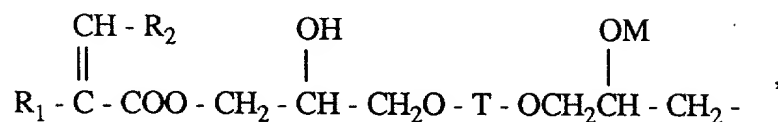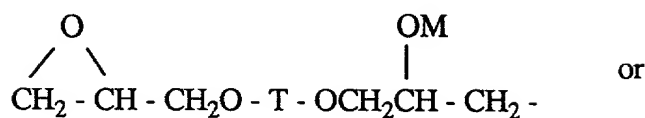<u>What is claimed is:</u>

1. An epoxy acrylate of formula (III)

$$
Q \left[\begin{array}{c} \overset{OM}{\underset{|}{}} \\ O - A - O - CH_2 - CH - CH_2 O - T - OCH_2CH - CH_2 \end{array} \right]_n L \qquad \text{(III)}
$$
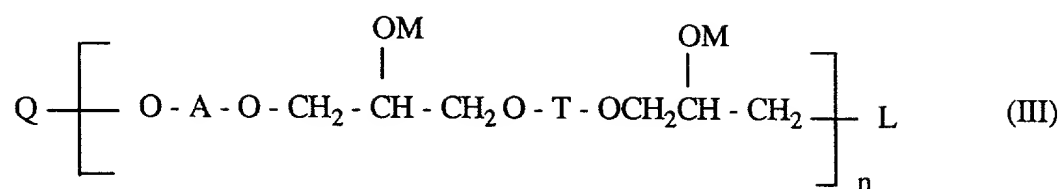
wherein

Q   is hydrogen or a group of formula

$$
\overset{O}{\overset{/\backslash}{- CH_2 - CH - CH_2}} \; ,
$$

$$
\overset{OH}{\underset{|}{}} \qquad \overset{CH - R_2}{\underset{\|}{}} \\
- CH_2 - CH - CH_2 - OOC - C - R_1 \qquad ,
$$

$$
\overset{O}{\overset{/\backslash}{CH_2 - CH}} - CH_2O - T - \overset{OM}{\underset{|}{OCH_2CH}} - CH_2 - \qquad \text{or}
$$

$$
\overset{CH - R_2}{\underset{\|}{}} \qquad \overset{OH}{\underset{|}{}} \qquad \overset{OM}{\underset{|}{}} \\
R_1 - C - COO - CH_2 - CH - CH_2O - T - OCH_2CH - CH_2 - \qquad ,
$$
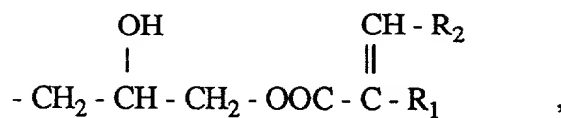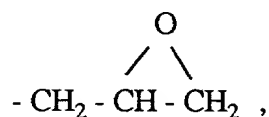
R_1 is -H or -CH$_3$, R_2 -H, -CH$_3$ or phenyl

T   is the radical of an aromatic bifunctional compound, and

M   is each independently hydrogen or a group of formula

$$-CH_2-CH-CH_2 \quad \overset{O}{\underset{\diagup\diagdown}{}} \quad \text{or}$$

$$-CH_2-\underset{\overset{|}{OH}}{CH}-CH_2-OOC-\underset{\overset{||}{CH-R_2}}{C}-R_1 \quad , \text{ in which}$$
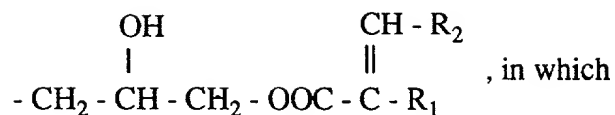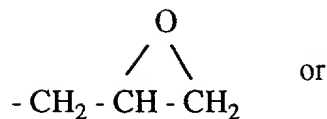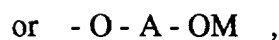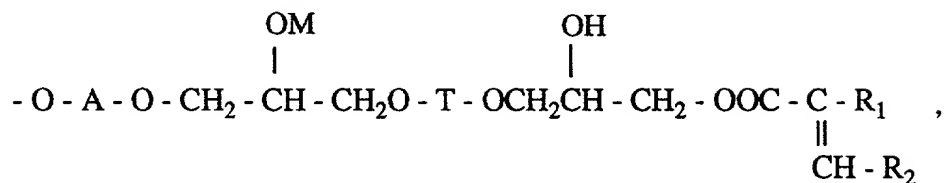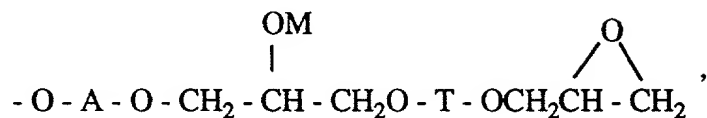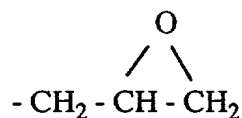
R_1 and R_2 are as defined above,

A   is the radical of an aromatic bifunctional compound,

n   is an integer from 0 to 300, and

L   is a group of formula

$$-O-A-O-CH_2-\underset{\overset{|}{OM}}{CH}-CH_2O-T-OCH_2\underset{}{CH}-\overset{O}{\underset{\diagup\diagdown}{CH_2}} \quad ,$$

$$-O-A-O-CH_2-\underset{\overset{|}{OM}}{CH}-CH_2O-T-OCH_2\underset{\overset{|}{OH}}{CH}-CH_2-OOC-\underset{\overset{||}{CH-R_2}}{C}-R_1 \quad ,$$

or $-O-A-OM$,

with the proviso that in formula III not all radicals M may be simultaneously hydrogen or a group of formula

$$-CH_2-CH-CH_2 \quad \overset{O}{\underset{\diagup\diagdown}{}}$$

but at least 10 mol %, preferably 20-100 mol %, of the radicals M that are not present in the end groups Q and L denote a group of the above formula

$$\begin{array}{cc} \text{OH} & \text{CH - R}_2 \\ | & || \\ \text{- CH}_2\text{ - CH - CH}_2\text{ - OOC - C - R}_1 \end{array}$$
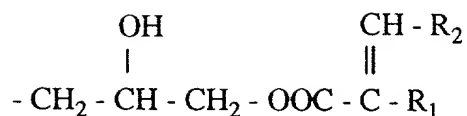
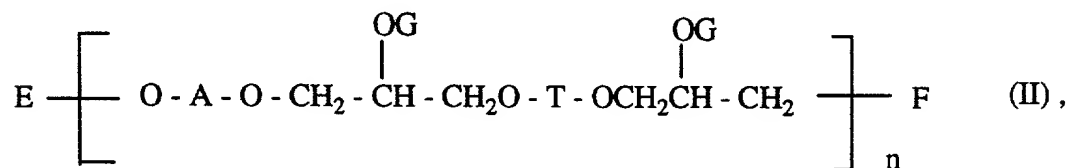wherein R_1 and R_2 are as defined above.

2. An epoxy acrylate of formula III according to claim 1, wherein R_1 is hydrogen or methyl and R_2 is hydrogen, methyl or phenyl.

3. An epoxy acrylate of formula III according to claim 1, wherein n is an integer from 0 to 50 and A and T are each independently of the other a linking group of formula
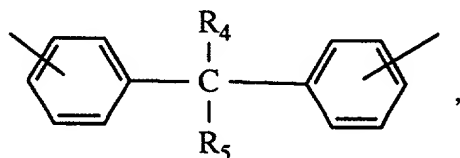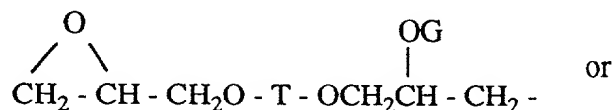

wherein R_4 and R_5 are each independently of the other -H or C_1-C_4alkyl and the phenyl radicals of said linking group are unsubstituted or bromine-substituted.

4. A process for the preparation of an epoxy acylate of formula (III) according to claim 1, which comprises reacting a postglycidylated epoxy resin of formula II

$$E \left[\begin{array}{c} \quad\quad\quad\quad \text{OG} \quad\quad\quad\quad\quad\quad \text{OG} \\ | \quad\quad\quad\quad\quad\quad | \\ \text{O - A - O - CH}_2\text{ - CH - CH}_2\text{O - T - OCH}_2\text{CH - CH}_2 \end{array} \right]_n \text{F} \quad \text{(II)} ,$$

wherein

E   is hydrogen or a group of formula

$$\begin{array}{cc} \quad\quad \text{O} & \quad\quad\quad \text{OG} \\ / \backslash & \quad\quad\quad | \\ \text{CH}_2\text{ - CH - CH}_2\text{O - T - OCH}_2\text{CH - CH}_2\text{ -} \end{array} \quad \text{or}$$
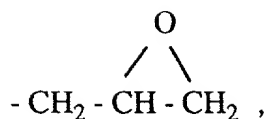
$$\overset{\displaystyle O}{\overset{\displaystyle /\,\backslash}{-\,CH_2 - CH - CH_2}} \;,$$

F represents the groups of formula - O - A - OG or

$$- O - A - O - CH_2 - \overset{\overset{\displaystyle OG}{|}}{CH} - CH_2O - T - OCH_2\overset{\overset{\displaystyle O}{/\,\backslash}}{CH} - CH_2 \quad \text{and}$$
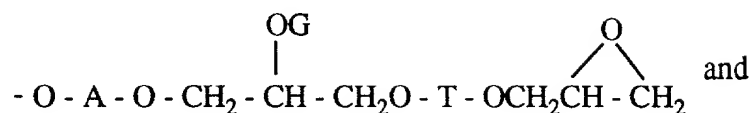
G is -H or the radical

$$\overset{\displaystyle O}{\overset{\displaystyle /\,\backslash}{-\,CH_2 - CH - CH_2}} \;,$$

with the proviso that, in formula II, at least 10 mol % of the radicals G that are not present in the end groups E and F represent the group of formula

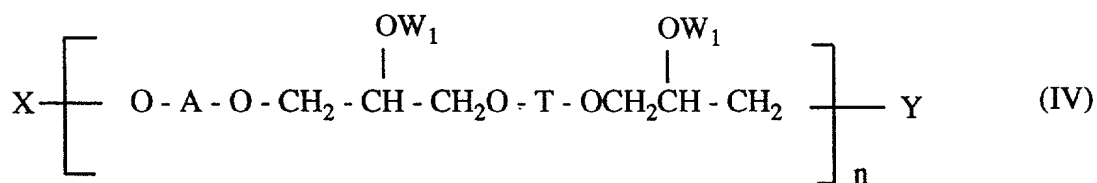$$\overset{\displaystyle O}{\overset{\displaystyle /\,\backslash}{-\,CH_2 - CH - CH_2}} \;, \text{ and}$$
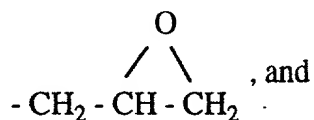
A, T, and n are as defined in claim 1,

with an ethylenically unsaturated monocarboxylic acid in the presence of a catalyst and a polymerisation inhibitor, at elevated temperature.

5. A carboxyl group-containing epoxy acrylate of formula IV

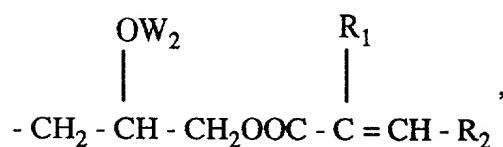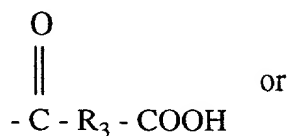$$X \overset{}{-}\left[- O - A - O - CH_2 - \overset{\overset{\displaystyle OW_1}{|}}{CH} - CH_2O - T - OCH_2\overset{\overset{\displaystyle OW_1}{|}}{CH} - CH_2 \right]_n - Y \qquad \text{(IV)}$$

wherein

X is hydrogen or a group of formula

$$
\begin{array}{c}
\text{O} \\
\parallel \\
\text{- C - R}_3\text{ - COOH}
\end{array} \quad ,
$$

$$
\begin{array}{ccc}
\text{OW}_2 & & \text{R}_1 \\
| & & | \\
\text{- CH}_2\text{ - CH - CH}_2\text{OOC - C = CH - R}_2 & & \text{or}
\end{array}
$$

$$
\begin{array}{ccc}
\text{OW}_1 & \text{OW}_2 & \text{R}_1 \\
| & | & | \\
\text{- CH}_2\text{ - CH - CH}_2\text{O - T - OCH}_2\text{CH - CH}_2\text{OOC - C = CH - R}_2 & & ,
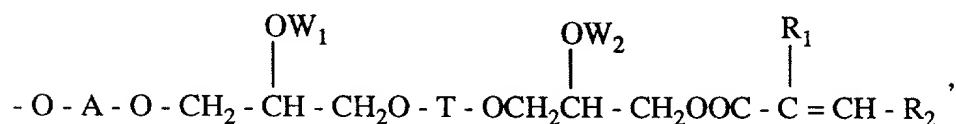\end{array}
$$
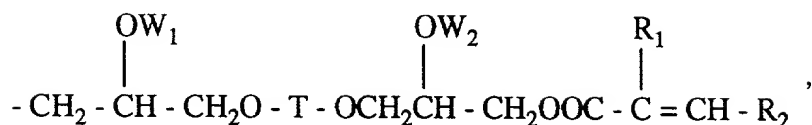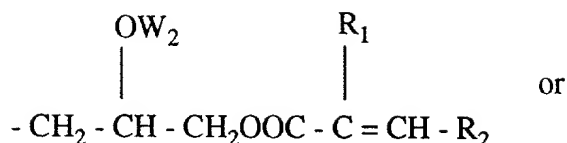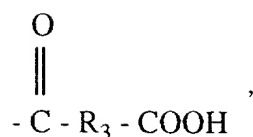
R_3 is the radical of a cyclic anhydride of a polycarboxylic acid after removal of the anhydride radical,

W_1 is hydrogen or a group of formula

$$
\begin{array}{c}
\text{O} \\
\parallel \\
\text{- C - R}_3\text{ - COOH}
\end{array} \quad \text{or}
$$

$$
\begin{array}{cc}
\text{OW}_2 & \text{R}_1 \\
| & | \\
\text{- CH}_2\text{ - CH - CH}_2\text{OOC - C = CH - R}_2 & ,
\end{array}
$$

W_2 is -H or the group
$$
\begin{array}{c}
\text{O} \\
\parallel \\
\text{- C - R}_3\text{ - COOH}
\end{array} \quad , \text{ and}
$$

Y is the group of formula $-O-A-O-W_1$ or

$$
\begin{array}{ccc}
\text{OW}_1 & \text{OW}_2 & \text{R}_1 \\
| & | & | \\
\text{- O - A - O - CH}_2\text{ - CH - CH}_2\text{O - T - OCH}_2\text{CH - CH}_2\text{OOC - C = CH - R}_2 & ,
\end{array}
$$

wherein the symbols A, T, R_1, R_2, R_3 and n are as defined in claim 1, with the proviso that, in formula IV, at least 10 mol % of radicals W_1 that are not in the end groups X and Y are a group of formula

$$\begin{array}{c} O \\ \| \\ OC\text{-}R_3\text{-}COOH \\ | \\ \end{array}$$

$$- CH_2 - CH - CH_2OOC - \overset{\overset{\displaystyle R_1}{\displaystyle |}}{C} = CH - R_2$$

,

wherein R_1 and R_2 are as defined in claim 1 and R_3 is as defined in claim 5.

6. A process for the preparation of a carboxyl group containing expoxy acrylate of formula IV as claimed in claim 5, which comprises reacting an epoxy acrylate of formula III as claimed in claim 1 with a cyclic anhydride of a polycarboxylic acid, in the absence or presence of a catalyst and of a polymerisation inhibitor, at elevated temperature.

7. A method for preparing photoresist formulations comprising the use of an epoxy acrylate of formula III as claimed in claim 1 as acrylate component.

8. A method for preparing photoresist formulations comprising the use of a carboxyl group-containing epoxy acrylate of formula IV as claimed in claim 5 as acrylate component.